

METHOD OF TREATING CHEST PAIN

5

TECHNICAL FIELD

This invention pertains to a method of treating chest pain, particularly angina pectoris.

BACKGROUND

10 Angina pectoris is a condition where a person feels paroxysmal pain in the chest. This clinical complex is characterized by various degrees of chest pain that occurs in sudden attacks. The chest pain may be accompanied by other symptoms, notably pain or discomfort of the arms, shoulders, and other sites. The symptoms are most often induced by some physical or emotional stress and often subside 15 promptly with rest or appropriate therapy. *McGraw Hill Encyl. Sci. & Tech.*, vol. 1, p. 539 (6th Ed. 1987).

The chest pain typically is associated with an insufficient supply of blood to a portion of the heart. Common occurrences that precede an angina attack are changes that cause a decrease in blood supply to heart muscle or that create sudden extra demands on the heart so that there is a relative inadequacy of blood. Arteriosclerosis frequently is responsible for the narrowing or partial occlusion of one of the coronary arteries or branches, but other contributing factors such as diabetes mellitus, familial incidence, and emotional stress are examples of other disorders that may set the stage for an anginal attack. This form of coronary heart 20 disease sometimes is a precursor to a heart attack or coronary thrombosis, where a persons artery becomes occluded by a blood clot. There is much overlap between angina pectoris and other forms of coronary heart disease such as arteriosclerotic heart disease and myocardial infarction. *McGraw Hill Encyl. Sci. & Tech.*, vol. 8, p. 346 (6th Ed. 1987).

30 Doctors regularly prescribe nitroglycerin to patients that suffer from angina pectoris. After oral administration, nitroglycerin is metabolized rapidly in the intestinal wall and liver, so that systemic bioavailability is rather low. Consequently,

SEPTEMBER 22 1998 0630
2000-22-98

oral doses are quite high and plasma levels are erratic. Medical authorities do not recommend sustained-release forms of nitroglycerin because of poor oral bioavailability and favorable tolerances. *Remington's Pharmaceutical Sciences*, Chap. 41, p. 844, (18th Ed. 1990).

5 Nitroglycerin is commonly administered in the form of very small tablets that are approximately one-eighth inch in diameter. These tablets are very difficult for the patient to handle: they can be easily dropped and often more than one tablet comes out of the bottle during dispensing. Size also makes it hard for the patient to return unneeded tablets to the bottle, particularly when moisture is present on the 10 patient's hand.

When taking nitroglycerin, patients put the tablet under their tongue and wait about two-to-four minutes for the tablet to dissolve. It is sometimes not easy for the patient to ascertain if the medicine has been properly ingested. The patient then waits approximately five minutes for the angina attack to go away.

15

SUMMARY OF THE INVENTION

Sub B1
~~This invention provides an alternative to taking nitroglycerin to combat chest pain such as angina pectoris. In accordance with this invention, a person takes in lime juice after noticing the onset of the chest pain. As the term is used in this document, "lime juice" means lime juice or limeade or any combination that includes the juice of a lime whether in concentrated or diluted form or that includes the active ingredients in the lime that counter the chest pain or anginal attack.~~

20 The inventor surprisingly discovered that by taking lime juice shortly after noticing that he was experiencing an anginal attack that his chest pain immediately subsided. The lime juice can be easily administered by, for example, placing about one-fourth teaspoon or more of frozen concentrate lime juice in the mouth, letting it dissolve, and swallowing. The inventor also discovered that by consuming lime juice regularly, for example, by drinking about at least a glass daily in non-concentrate form, that chest pain did not occur and would not reoccur.

25 30 The present invention is advantageous in that a patient can easily determine if the medicine is properly ingested. Lime juice has a very noticeable taste that

*mental
or
physical
comfort?*

disappears after it leaves the mouth. Since the juice is regularly stored in the refrigerator or freezer, it can be quickly located by the patient, particularly at nighttime where the refrigerator light plays a helpful role. This of course is very important because time may be of the essence when experiencing angina pectoris.

5 The patient does not have to wait two-to-four minutes for a tablet to dissolve, and there is no concern for dropping tablets on the floor. Lime juice also costs much less than nitroglycerin, which typically runs about \$10 to \$15 for a bottle that contains about thirty pills. Because limes are a naturally occurring product meant for digestion, patients will generally experience no side effects unless they happen to

10 be allergic to limes.

These and other advantages of the invention are more fully described below in the detailed description of this invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

15 In practicing the present invention, a person who experiences or has experienced chest pain associated with a heart condition takes in lime juice to alleviate the pain. The inventor discovered that after eating only about one-fourth teaspoon of commercially available frozen concentrate for lime juice or limeade, that his chest pain subsided for two to five hours at a minimum. The inventor found it much less troublesome to ingest the lime juice as opposed to taking nitroglycerin tablets for the reasons discussed above. After learning of the benefits of lime juice, the inventor used lime juice solely without taking nitroglycerin and without fear that the chest pains would reoccur.

25 Although lime juice is easily administered orally, it is not beyond the scope of this invention to take it using other methods such as intravenous methods. It is important to get the lime juice into the body rapidly so that it can ultimately enter the circulatory system (in form unknown) to cause a quick recovery. The lime juice may be taken, for example, in the form of juice fresh from the lime, from frozen concentrate as indicated above, or in diluted form with the addition of water.

30 Persons skilled in the art of purification and/or pharmacology may also locate the active ingredient(s) in the lime and administer those ingredient(s) in purified form or

what
is the
active
ingredient?

otherwise to persons who suffer from chest pain such as angina pectoris. As lime juice is defined above it is intended to include all these forms of administering lime juice.

The inventor discovered that approximately one fourth or more teaspoons of lime juice in frozen concentrated form was sufficient to alleviate the chest pain he was suffering as a result of angina pectoris. Preferably, at least one half teaspoon was consumed to recover from an angina attack. When chest pain is strong, 2 to 3 teaspoons administered orally would remove the pain. The inventor also discovered that by drinking at least a cup of lime juice in non-concentrated form, more preferably two to five cups daily (two to three cups may be sufficient), that the chest pain did not occur or reoccur. When used in non-concentrated form approximately 16 fluid ounces to 72 fluid ounces of water are added to the frozen concentrate, which may be purchased in the store, e.g., Minute Maid™ concentrated Limeade. The manufacturer recommends the addition of about 52 fluid ounces. When lime juice is prepared from juice squeezed from a lime, the lime juice is preferably diluted at about $\frac{1}{4}$ to 2 cups of water per teaspoon of lime juice. The amount of lime juice taken may vary from person-to-person. Person should be able to determine for themselves the "effective amount" of lime juice that needs to be taken. By "effective amount" is meant an amount sufficient to have a beneficial effect on the heart after noticing the chest pain.

The following Examples have been selected to further illustrate features, advantages, and other details of the invention. It is to be expressly understood, however, that while the Example serve this purpose, the particular ingredients and amounts used as well as other conditions and details are not to be construed in a manner that would unduly limit the scope of this invention.

EXAMPLE

Example 1

Sub B2 Upon noticing a pain in my chest, I placed one-half to one teaspoon of Premium All Natural Frozen Concentrate For Limeade, Minute Maid™ brand, (contains 14 percent lime juice) onto a spoon. The spoon was placed in my mouth,

b
and the frozen concentrated limeade dissolved and was swallowed. The chest pain subsided almost instantaneously.

Example 2

5 Limeade in non-concentrated form was prepared by opening a can of the Minute Maid™ brand Premium All Natural Frozen Concentrate for Limeade, removing the contents and placing it in a pitcher, adding approximately 52 fluid ounces (about 4.5 cans) of tap water to the frozen concentrate, and stirring. The pitcher was placed in the refrigerator so that the contents would cool. I drank
10 approximately 2 to 3 glasses of limeade daily and did not notice the reoccurrence of chest pain.

Example 3

15 I purchased whole limes from the grocery store (key limes I believe). The limes were cleaned, sliced, and squeezed. I consumed approximately 1 teaspoon of the fresh-squeezed lime juice shortly after noticing the onset of chest pain. Shortly thereafter the chest pain subsided.

20 This invention may take on various modifications and alterations without departing from the spirit and scope thereof. Accordingly, it is to be understood that this invention is not to be limited to the above-described, but it is to be controlled by the limitations set forth in the following claims and any equivalents thereof. It is also to be understood that this invention may be suitably practiced in the absence of any element not specifically disclosed herein.